What we claim is:

1.   A method for determining accurate estimates of voice coil resistance in a system including a

voice coil motor driver (VCM driver) that drives a voice coil of a voice coil motor (VCM), the

method comprising:

(a)   determining at least one voice coil voltage value and at least one corresponding voice

coil current value, during a seek operation;

(b)   determining at least one voice coil velocity value based on servo information read

from servo wedges of a disk during the seek operation; and

(c)   estimating voice coil resistance based on the determined voice coil voltage, current

and velocity values.

2.   The method of claim 1, wherein steps (a) and (b) are performed while the VCM driver is not

in saturation.

3.   The method of claim 2, wherein steps (a) and (b) are performed during deceleration of the

voice coil.

4.   The method of claim 3, wherein steps (a) and (b) are performed during a portion of the

deceleration where voice coil current is substantially settled.

5.   The method of claim 1, wherein step (a) includes determining each voice coil current value based on a current command.

6.   The method of claim 1, wherein step (a) includes determining each voice coil current value based on a voltage measurement across a sense resistor.

7.   The method of claim 1, wherein step (a) includes determining the at least one voice coil voltage value based on at least one voltage sample produced during the seek operation.

8.   The method of claim 1, wherein step (c) comprises estimating voice coil resistance using the following equation:

$$R_{coil} = (V_{coil} - \omega K_T) / I_{coil},$$

where

   R_{coil} is the estimated coil resistance;

   V_{coil} is the coil voltage measured during a seek deceleration;

   I_{coil} is the corresponding coil current during the seek deceleration;

   ω is the corresponding coil velocity, during the seek deceleration, as determined based on servo information; and

   K_T is a known constant.

9.   The method of claim 8, wherein the voice coil current value is determined based on a current

command.

10. The method of claim 8, wherein the voice coil current value is based on a voltage measured across a sense resistor.

11. The method of claim 1, wherein steps (a), (b) and (c) are repeated a plurality of time so that the voice coil resistance is continually estimated.

12. A machine readable medium having instructions stored thereon that when executed by a processor cause a system to:

determine at least one voice coil voltage value and at least one corresponding voice coil current value, during a seek operation;

determine at least one voice coil velocity value based on servo information read from servo wedges of a disk during the seek operation; and

estimate voice coil resistance based on the determined voice coil voltage, current and velocity values.

13. The machine readable medium of claim 12, wherein the instructions that cause a system to estimate voice coil resistance include instructions that cause a system to determine the voice coil voltage, voice coil current and voice coil velocity values while a voice coil motor (VCM), that drives the voice coil, is not in saturation.

14.   The machine readable medium of claim 13, wherein the instructions that cause a system to estimate voice coil resistance include instructions that cause a system to determine the voice coil voltage, voice coil current and voice coil velocity values during deceleration of the voice coil.

15.   The machine readable medium of claim 14, wherein the instructions that cause a system to estimate voice coil resistance include instructions that cause a system to determine the voice coil voltage, voice coil current and voice coil velocity values during a portion of the deceleration where voice coil current is substantially settled.

16.   The machine readable medium of claim 12, wherein the instructions that cause a system to estimate voice coil resistance include instructions that cause a system to determine each voice coil current value based on a current command.

17.   The machine readable medium of claim 12, wherein the instructions that cause a system to estimate voice coil resistance include instructions that cause a system to determine each voice coil current value based on a voltage measurement across a sense resistor.

18.   The machine readable medium of claim 12, wherein the instructions that cause a system to estimate voice coil resistance include instructions that cause a system to determine the at least one voice coil voltage value based on at least one voltage sample produced during the seek operation.

19.   The machine readable medium of claim 12, wherein the instructions that cause a system to estimate voice coil resistance use the following equation:

$$R_{coil} = (V_{coil} - \omega K_T) / I_{coil},$$

where

R_{coil} is the estimated coil resistance;

V_{coil} is the coil voltage measured during a seek deceleration;

I_{coil} is the corresponding coil current during the seek deceleration;

ω is the corresponding coil velocity, during the seek deceleration, as determined based on servo information; and

K_T is a know constant.

20.   The machine readable medium of claim 19, wherein each voice coil current value is determined based on a current command or based on a voltage measured across a sense resistor.